PTC Technical Specialists E-Newsletter
Date: December 1, 2007

PTC Product Focus: **A)** Progressive Die Extension 2.2

B) Windchill R9 Part Classification and Reuse

Tips of the Month: **A)** Motion Skeleton Example Using 4-bar Mechanisms

B) NEW! Edit Structure (now with less java!)

Announcements: Most Recent Announcements

Upcoming Events & Training Schedule: Events & Training Schedule

---

PTC Product Focus

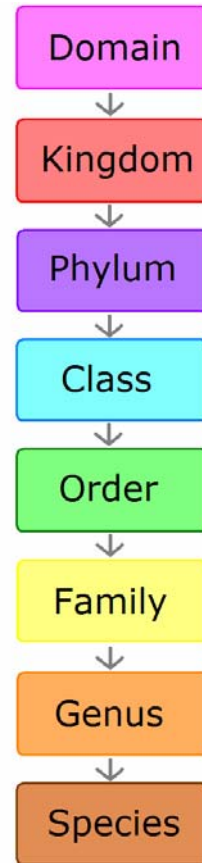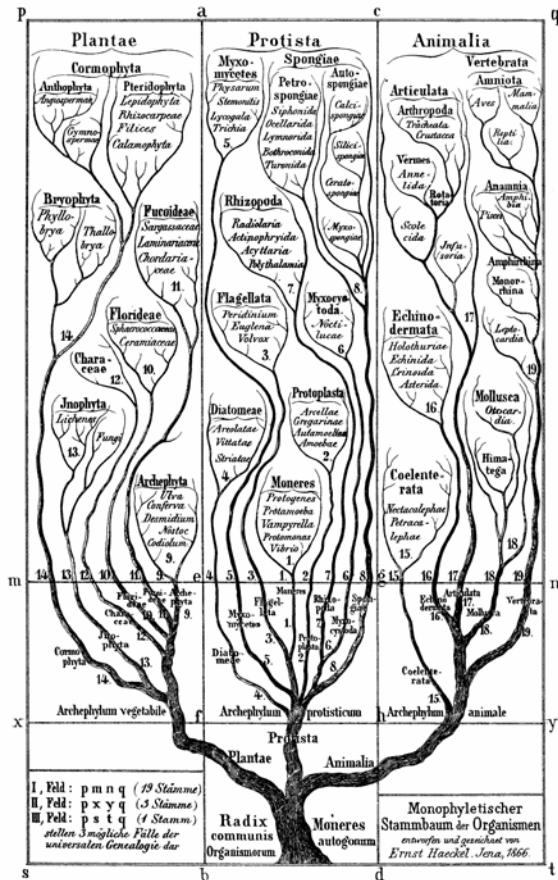### Progressive Die Extension 2.2

Click Here To View

Back To Top
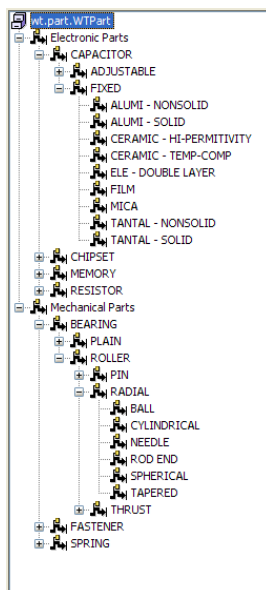

PTC Product Focus

Windchill R9 Part Classification and Reuse

What is the Classification of Parts?

The methodology of classification as been in use for centuries, dating back as far as Aristotle. Classification is a method by which items are grouped and categorized. Classification also can be called taxonomy. The diagrams below give examples of a biological classification.

Domain
↓
Kingdom
↓
Phylum
↓
Class
↓
Order
↓
Family
↓
Genus
↓
Species

Classification and Reuse provides a method for organizing parts into a systematic arrangement of groups or categories according to established criteria to support efficient and effective searching for reuse of existing parts. Or put another way, classification is the categorization of objects according to their qualities or extrinsic information attributed to them to help in their management.

Windchill PartsLink is an optional module for Windchill PDMLink which provides classification functionality and high-speed classification based searching within the Windchill PDMLink database. Windchill PartsLink enables designers to achieve maximum part reuse through Web-based access to standards and preferred parts, and allows suppliers of standard parts to provide their customers with rich technical product data.

With Windchill PartsLink you can develop classifications and structured content for product information systems, create interactive web-based product catalogs, create component management systems and product libraries, perform parametric searches on part and design information, and deliver rich CAD information and visualizations from multiple engineering applications to the user.

A *very* simple example of a parts classification would be the breakdown fasteners:

Through the PartsLink search mechanism, the use can browse naturally through the classification structure in order to find the component required. Using parametric searches, users can find components by specifying values and ranges on any attribute associated with a branch (or node) on the classification structure using various measurement systems.

There are several industry standards that exist for classification including RosettaNet, IEEE, ASTM, etc. However, surprisingly enough there are many categories of parts classification that have yet to be defined. Because of this, many companies use their own standards for classifying both mechanical and electrical components.

Why Classify Parts?

The Search and Reuse process accomplishes three main objectives:
- Organizes and controls access to the data to be reused
- Provides efficient and effective searching for the data
- Enables streamlined reuse of data

A classification schema provides a method for organizing parts into a groups or categories according to established criteria to support efficient and effective searching for reuse. In a classification schema, classes and attributes are organized in a hierarchy tree. This tree implies that there is a relationship between the different parts of the tree. It is implicit that there is inheritance between items in the tree. For example, when an attribute is added to a class, it automatically assumes all the attributes associated with the class in addition to those attributes which are unique to it.

Today 70% to 80% of product cost is attributable to the supply chain - engineers spend 5-25% of their time identifying the right parts to use. By classifying part catalogs, companies reduce component costs because new parts cost money (industry averages for new part introduction range from $5000 to $10,000), maintaining parts cost money (annual costs range from $3000 to $6000) and duplicate parts cost money and cause confusion (average number of duplicate parts can range from 5% to over 30%).

By classifying component data, companies can achieve faster time to market opportunities by way of efficient and effective design re-use, by engineers selecting the right component the first time and by quick adoption of new approved components within designated company standards.
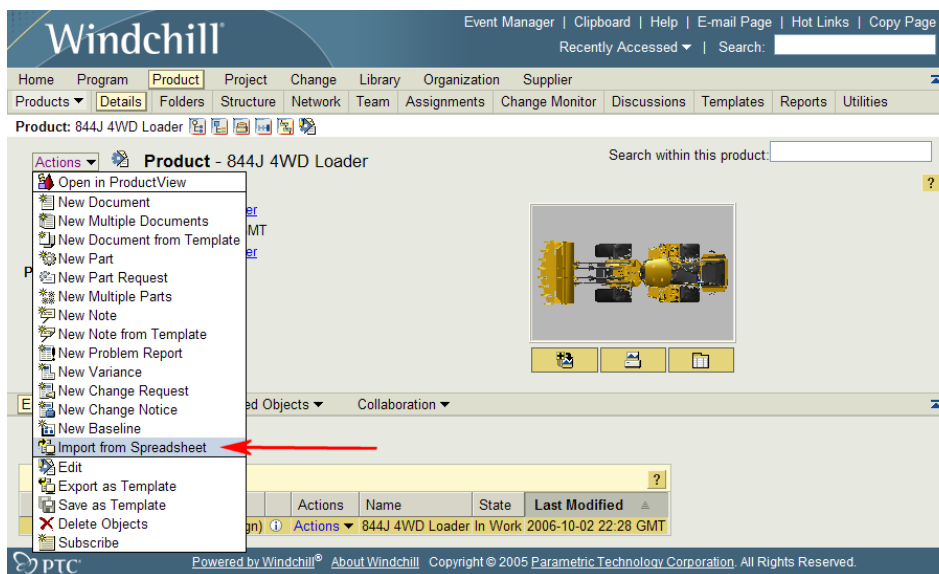
How to Classify Parts?

The business processes of classifying parts may occur several ways.
- When a new part is created, a designer may know how to classify the part into a specific classification or decide to identify the classification at a later time if insufficient information about the part's classification is known.
- After selecting the classification of the part, the classification attributes from the classification template are displayed to the designer. The designer may then enter the new values for the attributes. If the designer does not know the value of an attribute, the value may be left blank. When the part is updated or viewed from a details page, all of the attributes from the classification template is displayed, including the attributes with blank values.
- After the part is created, it may be determined that the part should be classified. The part is then updated by an engineer to assign the appropriate classification and enter applicable

attribute values. For example, some companies may choose to classify library parts. When a part is initially created, the part may be located in a product and not in a specific Windchill PDMLink library. However, with time, it may be determined that this part can be commonly used in multiple products, so it is moved to a library and needs to be classified at that time.
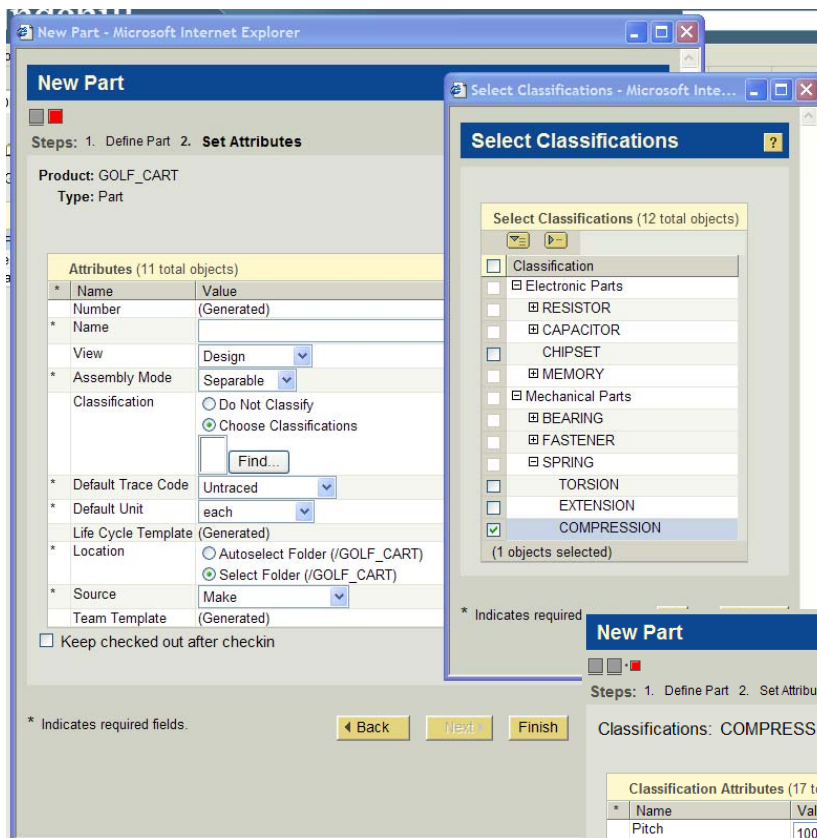
- If the designer selected the wrong classification accidentally, the parts manager (also called the librarian) or designer may need to update the classification to the correct classification node for that part. When removing the classification, the existing classification node is removed. The attributes from the original classification template are removed. The new classification node can then be selected and the new classification attributes added.
- In some cases, a company starts a new design from an existing design. From within the PDM system, if an existing part is copied to a new part, there is an option to maintain the assigned classification to the new part.

Specifically, within Windchill, parts can be classified several ways. One is using the default data loader – useful for bulk loading from legacy systems. The next way is to use a feature that was new with R8.0 M030 – Excel Import. Below is shown where one might use the command as well as a figure taken from an example Excel file.

New for Revision 9, parts can also be classified upon creation as part of the **Part Creation** wizard in the web interface. Once the type of part is selected, you will then be asked to enter part attributes. At this point, you will also be asked to choose whether a part is to be classified or not. Of course, in this example, you'll want the part classified, so you will check Choose Classification, whereby another wizard initiates which allows you to browse the classification structure and pick the node where this part will be classified. The last page in the wizard has you fill out the attribute values which are appropriate for that node in the classification structure. Selecting a different node in the structure could potentially bring up an entirely different set of attributes to be filled in.
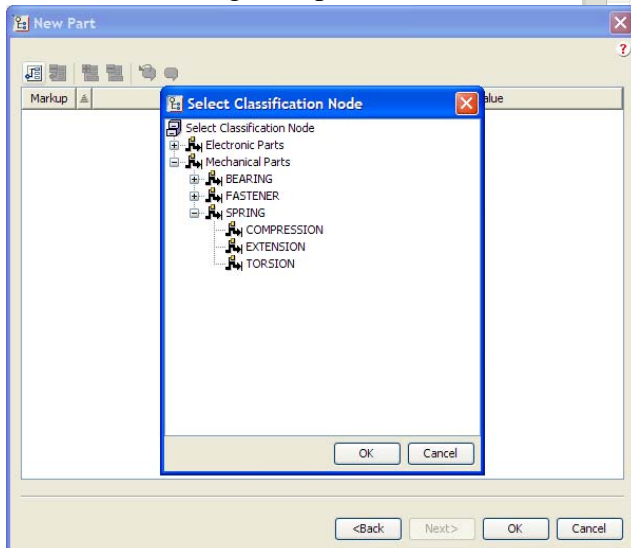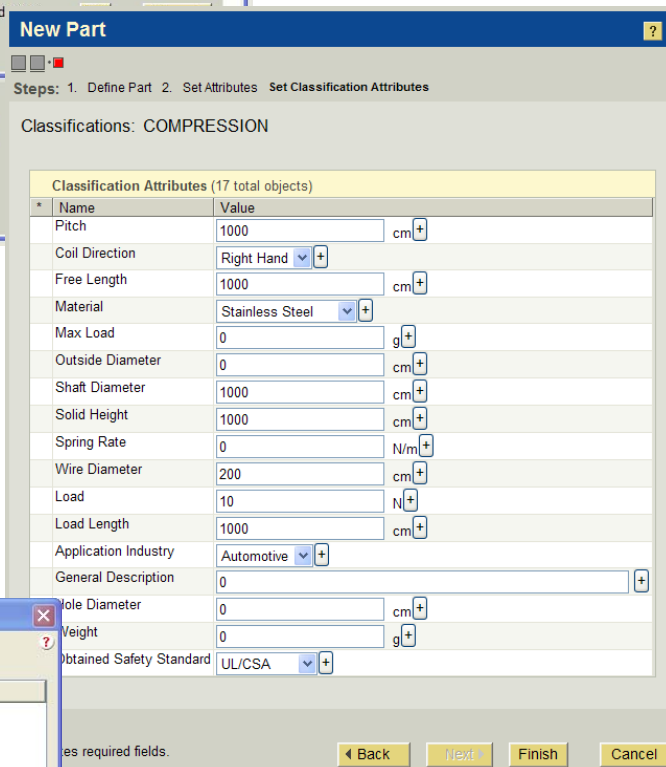
Finally, individual parts can be classified using **Product Structure Explorer**. Similarly to part creation/modification from the product page or part details page, a part is either created or checked out, set for classification and then the classification node is selected. All attributes appropriate for that classification node are assigned to that part and the user can then fill in the attribute values. An example of classifying in the Product

Structure Explorer is shown below.

How to access Classified Parts

Once a part is classified, it is available for retrieval using the Classification Search mechanism. The Classification Search interface is designed to allow both part searching and browsing. As you search and browse through the product

categories, the number of available parts displays beside the category names. You can browse parts by text and/or images. Both browse methods depend on a hierarchical organization of part information (that is, the classification). Parts can be divided into families, and subdivided according to characteristics and attributes. You can navigate using the controls of the search interface or your Internet browser.
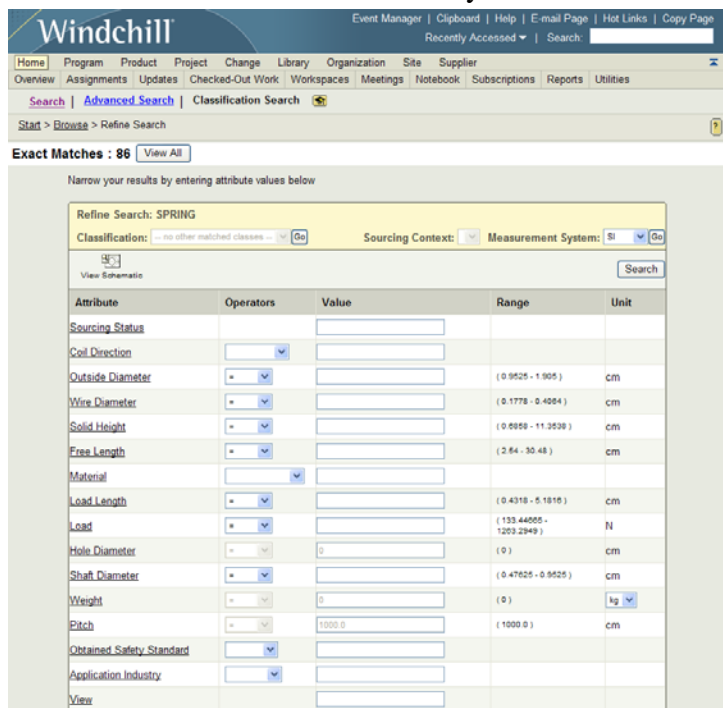
At anytime while browsing, click a link in the navigation (shown below) to move back in the classification hierarchy. This hierarchy will match the structure we reviewed earlier – with one exception. If there are no parts classified at a particular node in the structure, that node (and its lower branches) will not appear in the Classification Browse, hence saving unnessary searches down dead end branches.

You can specify attribute values to construct a parametric search. Only parts matching the search criteria you specified are returned. The returned data includes values for every attribute that has a value assigned to it. Dynamic data ranges are included that hints at what the limit of attribute values are for a particular parameter. It is valuable having this range available as this indicates a search outside those values will return zero results. Additionally, multiple measurement systems and units of measure can be switched – the data ranges will adjust accordingly.

Schematic diagrams are sometimes useful in determining search criteria for a product. If a schematic image is available for a product or product family, View Schematic displays below the navigation list of the current search.

Selecting the **View All** button will display a table containing all the parts that match the criteria of the parametric search or the end of a classification browse.

From this list, you can further refine your search by selecting the Find Similar Parts icon. This gives you the ability to define an "envelope" upon which to search for parts that meet and absolute or relative range of some or all parameters.

While only Windchill Parts can be classified, if this searching is done within the browser of Pro/ENGINEER, you can use the related CAD Documents in your Pro/ENGINEER design, thereby taking advantage of design reuse immediately.

Windchill Parts Classification and Reuse is a vital integral module of Windchill that will help you reduce component costs, reduce time to market and decrease overall design times.

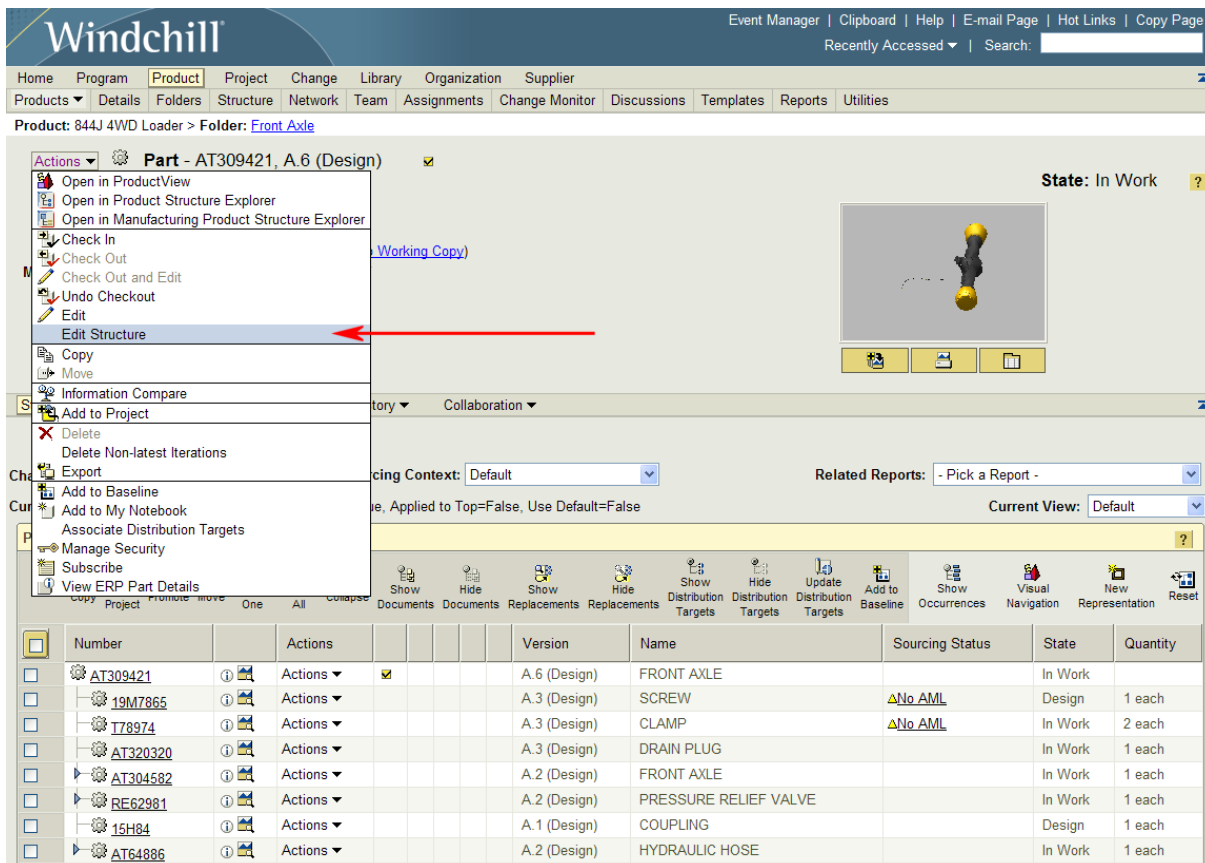[Back To Top](#)

Motion Skeleton Example Using 4-bar Mechanisms

Click Here To View

Back To Top

Tips of the Month

Edit Structure (now with less java!)

With Revision 9, Windchill introduces a **NEW FEATURE** called **Edit Structure**. **Edit Structure** allows you to modify a single level of an existing product structure by adding and removing objects, and also editing the attributes associated with existing objects – all without needing to initiate **Product Structure Explorer**. **Edit Structure** is a lightweight webpage as opposed to the java applet of the more robustly featured **PSE**. Its ease-of-use will make product structure modifications much easier and accessible to more roles within your organization.

To access **Edit Structure**, pick the command from the **Actions** menu which can be selected in numerous ways. Here, we are selecting it from the Part Details page. Once **Edit Structure** is selected, the **Edit Structure** wizard will start and check out the part for you if is not already checked out.

The toolbar provides different options for modifying the product structure:

Icon	Description
▬	Remove selected parts from the product structure.
⊞	Add a part that has already been created into the product structure.
▤	Paste the most recently copied object into the product structure.
▥	Paste selected parts into the product structure. This option allows which of all copied objects you would like to add. You can add one or more copied objects into the table.
⚙	Create a new part and add it to the structure.
⚙	Create multiple parts and add them to the structure.

Entering a Part Number in the search area (wildcards are accepted) allows you to quickly find parts within Windchill which can be added to your product structure. Selecting the **Add Part** icon ⊞, will bring up a search wizard whereby you can locate parts of interest by searching on Part Name and Part Number. The **Create Part** and **Create Multiple Parts** will initiate wizards where you will create part(s) entirely new to the database. Part Name, Part Number, View, Assembly Mode, Classify/Do Not Classify and other attributes will need to be specified for all parts created.

In summary, the new **Edit Structure feature** of Windchill PDMLink is a great, lightweight tool that allows quick, easy, one-level edits of your product structure.

Back To Top

Announcements

Educational Resource Library

Learn things you always wanted to do - but didn't know you could.

This one stop educational resource library will help you learn more about PTC Solutions and provide you with technical materials developed by the product experts to help you become more productive.

Get tutorials, how-to videos and expert advice for:

- Pro/ENGINEER
  - Conceptual and Industrial Design
  - Detailed Design
  - Simulation/Analysis
  - Production
  - Design Collaboration

- Windchill PDMLink

- Windchill ProjectLink

- Pro/INTRALINK

- PTC Online Tools

Check out the Educational Resource Library today.

PTC Tips & Techniques Newsletter Archives

Miss an issue! Can't find that awesome technique you read about? Fear not, you can click on the link below and go through our Customer PTC E-Newsletter archives.

Click Here To Access

It's better than finding the Covenant of the Ark!

PTC Tips & Techniques Webcasts: Work Smarter. Not Harder.

Click below to see regularly scheduled Tips & Techniques technical Webcasts that are designed to provide you with the most popular time-saving tricks that Pro/ENGINEER users of all skill levels will find useful. Get more out of your maintenance dollars!

Tips & Techniques: Work Smarter Not Harder!

E-PROFILES IS HERE!!
We have been eagerly anticipating the debut of the new electronic version of Profiles Magazine and now it is here! This new web site will supplement the print edition of the magazine and will

provide new useful features not feasible with paper media. e-Profiles will provide you with 24x7, worldwide access to key information previously available exclusively in the print version. "Tips & Tricks," a popular feature pioneered by Pro/USER, has also moved to the web and will be expanded as the site matures.

Please take a few minutes to check out this new web site. We don't think you will be disappointed.

http://profilesmagazine.com/

Back To Top

Upcoming Events & Training Class Schedules

Upcoming, 2007   Your local Pro/Engineer User Groups
                              http://www.ptcuser.org/rugs/

June 1 – 4, 2008   Long Beach, CA USA
                              PTC/USER World Event
                              http://www.ptcuser.org/

Events

Our seminars and conferences seek to provide you with relevant information regarding product development trends in your industry as well as innovative software learning experiences. Think of them as a constructive day off where you can share experiences and swap ideas with your peers.

If you can't manage to get away, we'll bring it to you. Check back often for regularly scheduled live webcast events.

You're Invited to Attend…

Please visit the PTC Education Services website for the latest training information including course descriptions, schedules, locations, and pricing.

- Attend a course at any PTC Center and receive a free copy of Pro/ENGINEER Wildfire Student Edition!

    http://www.ptc.com/services/edserv/index.htm

Live Instructor-Lead Virtual PTC Training Courses

Virtual Classrooms provide interactive learning with a trained PTC instructor in convenient and manageable sessions that last approximately 4 hours over a series of days. It's easy to join a class right from your desk using a phone or voice-over IP technology.

Sessions are performed just like a traditional ILT (including interactive exercises where you and the instructor can work on lab exercises together) and feature some of our most popular ILT courses. These sessions cover the exact same material as the traditional ILT in-center courses. Also look for some of our most frequently requested mini-topics delivered in the same format that are only an hour - two hours in duration.

If you have any questions about these sessions or would like to see getting other courses, not on this list, on the schedule please feel free to contact me for more details. They are a great way to bring training to you without you having to worry about location or being out from work for long stretches.

You can register for these sessions just as you would for any normal ILT class either by:

1. calling order admin at http://www.ptc.com/services/edserv/training/registra.htm or

2. you can go to PTC University directly at http://www.ptc.com/learning and submit a registration request directly. All you have to do is search the catalog by typing in "virtual" in the search field and you will see a listing.

PTC

Note: This PTC E-Newsletter will continue to be used for the following:

1) Inform you on events related to PTC products (user groups, conferences, training schedules, etc.)

2) Educate you on solutions that are available at PTC

3) Tips & Techniques using PTC Products

Note: These messages are compiled in the local PTC office and will be distributed via e-mail.

Back To Top